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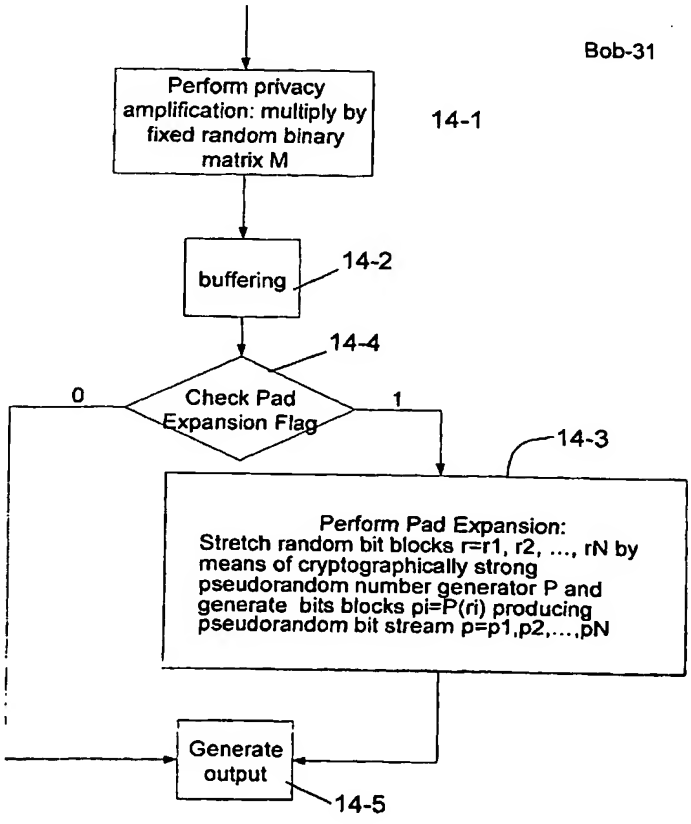
[Continued on next page]

(54) Title: KEY EXPANSION FOR QKD



(57) Abstract: A method of encrypting information using an encryption pad based on keys exchanged between quantum key distribution (QKD) stations is disclosed. The method includes establishing raw keys between two stations using QKD, processing the keys to establish a plurality of matching privacy amplified keys (Fig 8, 14-1) at each station and buffering (14-2) the keys in a shared key schedule. The method also includes the option of expanding (14-4, 14-3) one or more of the keys in the shared key schedule using a stream cipher to create a supply of expanded keys (14-3) that serve as pads for one-time-pad encryption.

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TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/03299

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : H04L 9/00
US CL : 380/44
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 380/44, 46, 278-

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,768,378 A (TOWNSEND et al.) 16 June 1998 (16.06.1998), abstract, col. 1, lines 52-through col. 2 , line 17, col.2, line 66 through col. 3, line41, col. 4,col. 12, lines 36-67.	1-5.
Y	US 5,757,912 A (BLOW) 26 May 1998 (27.05.1998), the entire document.	1, 3
Y	US 2001/0055389 A1 (HUGHES et al.) 27 December 2001 (27.12.2001), the entire document.	1-5

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

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Continuation of B. FIELDS SEARCHED Item 3:
West and Proquest. Search Terms: quantum key and one-time-pad, quantum key and authentivation, quantum key and expanded key, quantum key and mater key, key distribution anf quantum key